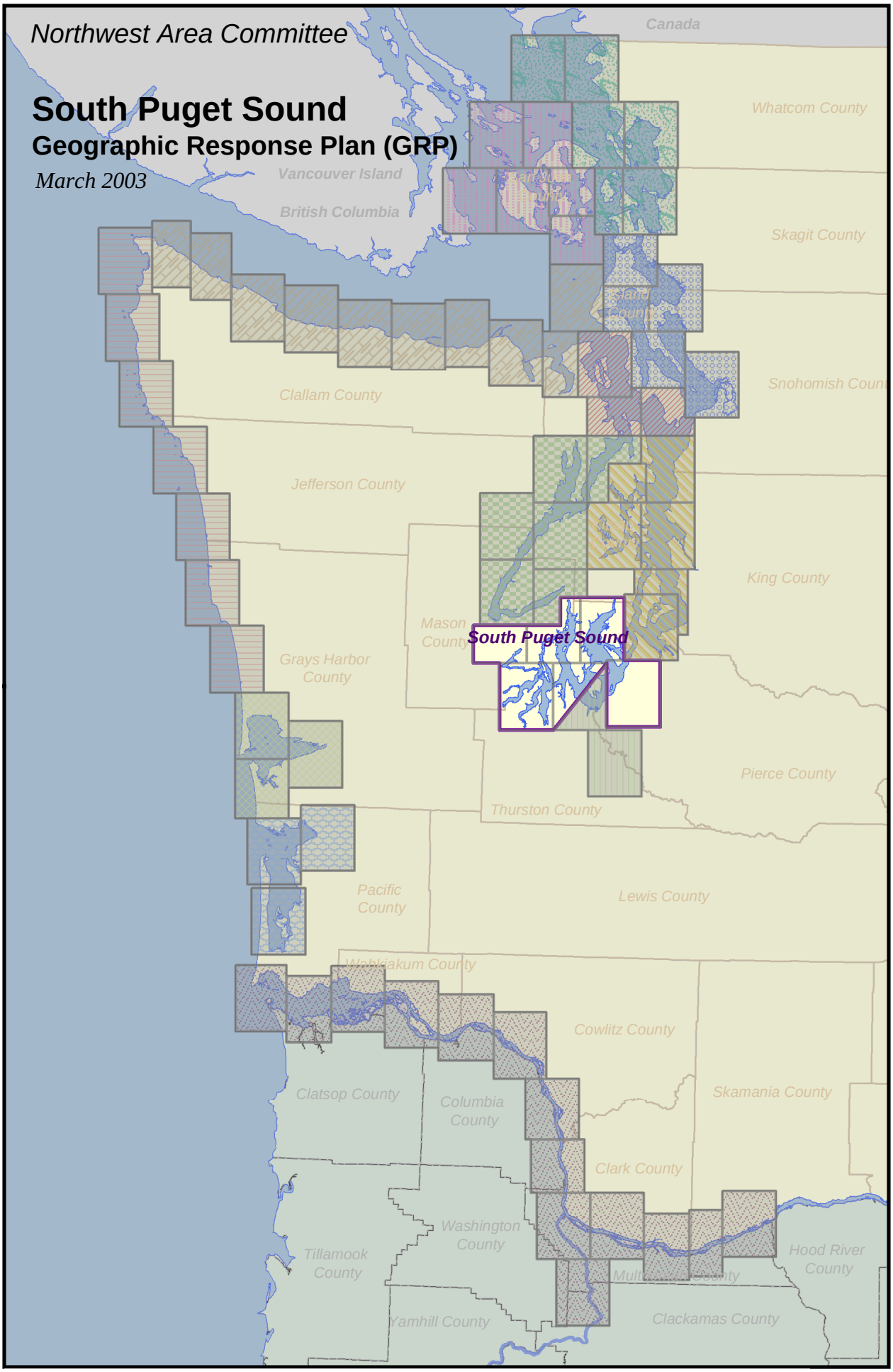

SPILL RESPONSE CONTACT SHEET

Required Notifications For Hazardous Substance or Oil Spills

USCG National Response Center ..... **(800) 424-8802**
In Oregon:
Department of Emergency Management ..... **(800) 452-0311**
In Washington:
Emergency Management Division ..... **(800) 258-5990**
Department of Ecology Northwest Regional Office ..... **(425) 649-7000**
Department of Ecology Southwest Regional Office ..... **(360) 407-6300**

U.S. Coast Guard

National Response Center	**(800) 424-8802**
Marine Safety Office Puget Sound:	
Watchstander	**(206) 217-6232**
Safety Office	(206) 217-6232
Marine Safety Office Portland:	
Watchstander	**(503) 240-9301**
Safety Office	(503) 240-9379
Pacific Strike Team	**(415) 883-3311**
District 13:	
MEP/drat	(206) 220-7210
Command Center	(206) 220-7001
Public Affairs	(206) 220-7237
Vessel Traffic Service (VTS)	**(206) 217-6050**

Environmental Protection Agency (EPA)

Region 10 Spill Response	**(206) 553-1263**
Washington Ops Office	(360) 753-9083
Oregon Ops Office	(503) 326-3250
Idaho Ops Office	(208) 334-1450
RCRA/ CERCLA Hotline	(800) 424-9346
Public Affairs	**(206) 553-1203**

National Oceanic Atmosphere Administration

Scientific Support Coordination	(206) 526-6829
Weather	(206) 526-6087

Canadian

Marine Emergency Ops/Vessel Traffic	(604) 666-6011
Environmental Protection	(604) 666-6100
B.C. Environment	(604) 356-7721

Department of Interior

Environmental Affairs	(503) 231-6157
	(503) 621-3682

U.S. Navy

Naval Shipyard	**(360) 476-3466**
Naval Base Seattle	(360) 315-5440
Supervisor of Salvage	**(202) 695-0231**

Army Corps of Engineers

Hazards to Navigation	(206) 764-3400

Muckleshoot Tribe

Tribal Office	(253) 939-3311
Tribal Police	(253) 833-7616

Nisqually Tribe

Tribal Office	(360) 456-5221
After Hours Emergencies	(360) 459-9603

Puyallup Tribe of Indians

Tribal Office	(253) 573-7800
After Hours Emergencies	**(253) 573-7911**

Squaxin Island Tribe

Tribal Office	(360) 426-9781
After Hours Emergencies	(360) 426-5222

Federal O.S.R.O./ State Approved Response Contractors

All Out Indust. & Env. Services	(360) 414-8655
Certified Cleaning Services, Inc.	(253) 536-5500
Clean Sound Cooperative, Inc.	**(425) 783-0908**
Cowlitz Clean Sweep, Inc.	(360) 423-6316
FOSS Environmental	**(800) 337-7455**
Global Diving and Salvage	(206) 623-0621
Guardian Industrial Services, Inc.	(253) 536-0455
MSRC	(425) 252-1300
National Response Corporation	(206) 340-2772

Washington State

Department of Ecology Headquarters	(360) 407-6900
Southwest Region	**(360) 407-6300**
Northwest Region	**(425) 649-7000**
Central Region	**(509) 575-2490**
Eastern Region	**(509) 456-2926**
Department of Fish and Wildlife	**(360) 534-8233**
Emergency Management Division	(360) 438-8639
	(800) 258-5990
State Patrol	
Bellevue	(425) 455-7700
Tacoma	(253) 536-6210
Bremerton	(360) 478-4646

Oregon State

Department of Environmental Quality	(503) 229-5733
Emergency Management	**(503) 378-6377**
	(800) 452-0311

HOW TO USE THIS GEOGRAPHIC RESPONSE PLAN

Purpose of Geographic Response Plan (GRP)

This plan prioritizes resources to be protected and allows for immediate and proper action. By using this plan, the first responders to a spill can avoid the initial confusion that generally accompanies any spill.

Geographic Response Plans are used during the emergent phase of a spill which lasts from the time a spill occurs until the Unified Command is operating and/or the spill has been contained and cleaned up. Generally this lasts no more than 24 hours. The GRPs constitute the federal on-scene coordinators' and state on-scene coordinators' (Incident Commanders) "orders" during the emergent phase of the spill. During the project phase, the GRP will continue to be used, and the planned operation for the day will be found in the Incident Action Plan's Assignment List (ICS Form 204). The Assignment List is prepared in the Planning Section with input from natural resource trustees, the Incident Objectives (ICS Form 202), Operations Planning Worksheet (ICS Form 215), and Operations Section Chief.

Strategy Selection

Chapter 4 contains complete strategy descriptions in matrix form, response priorities, and strategy maps. The strategies depicted in Chapter 4 should be implemented as soon as possible, following the priority table in Section 2 with the "Potential Spill Origin" closest to the actual spill origin. These strategy deployment priorities may be modified by the Incident Commander(s) after reviewing on scene information, including: tides, currents, weather conditions, oil type, initial trajectories, etc.

It is assumed that control and containment at the source is the number one priority of any response. If, in the responder's best judgment, this type of response is infeasible then the priorities laid out in Chapter 4, Section 2 take precedence over containment and control.

It is important to note that strategies rely on the spill trajectory. A booming strategy listed as a high priority would not necessarily be implemented if the spill trajectory and booming location did not warrant action in that area. However, the priority tables should be followed until spill trajectory information becomes available, and modifications to the priority tables must be approved by the Incident Commander(s).

The strategies discussed in this GRP have been designed for use with persistent oils and may not be suitable for other petroleum or hazardous substance products. For hazardous substance spills, refer to the Northwest Area Contingency Plan, Chapter 7000.

Standardized Response Language

In order to avoid confusion in response terminology, this GRP uses standard National Interagency Incident Management System, Incident Command System (NIIMS, ICS) terminology and strategy names, which are defined in Appendix A, Table A-1 (e.g. diversion, containment, exclusion).

SOUTH PUGET SOUND
Geographic Response Plan

Record of Changes

Date	Change Number	Summary of Changes	Initials of person making change
July 27, 1994	Original Release	N/A	N/A
Dec. 7, 1994	1st Change	Replacement of document - includes new chapters and revised Chapter 4 based on field verification.	
March 2003	2nd Change	Update of Chapter 4 using GIS based maps, and new priority tables based on trajectory modeling.	D Davis

South Puget Sound Geographic Response Plan
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South Puget Sound, WA

GEOGRAPHIC RESPONSE PLAN

1. INTRODUCTION: SCOPE OF THIS PROJECT

Geographic Response Plans are intended to help the first responders to a spill avoid the initial confusion that generally accompanies any spill. This document serves as the federal and state on-scene-coordinators "orders" during a spill in the area covered by this GRP (see Chapter 3 for area covered). As such, it has been approved by the U.S. Coast Guard Marine Safety Office and the Washington State Department of Ecology Spills Program. Changes to this document are expected as more testing is conducted through drills, site visits, and actual use in spill situations. To submit comments, corrections, or suggestions please refer to Appendix C.

GRPs have been developed for the marine and inland waters of Washington, Oregon, and Idaho. They are prepared through the efforts and cooperation of the Washington Department of Ecology, Washington Department of Fish and Wildlife, Oregon Department of Environmental Quality, Idaho State Emergency Response Commission, the U.S. Coast Guard, the Environmental Protection Agency, tribes, other state and federal agencies, response organizations, and local emergency responders.

GRPs were developed through workshops involving federal, state, and local oil spill emergency response experts, response contractors, and representatives from tribes, industry, ports, environmental organizations, and pilots. Workshop participants identified resources which require protection, developed operational strategies, and pinpointed logistical support. A similar process has been used for major updates.

Following the workshops, the data gathered was processed and reproduced in the form of maps and matrices which appear in Chapters 4 through 6. The maps in Chapters 5 and 6 were generated using Canvas. Maps for Chapter 4 were generated using ArcView GIS. The matrices were created using MS Excel, and the balance of each GRP was produced using MS Word.

The first goal of a GRP was to identify, with the assistance of the Washington State Natural Resource Damage Assessment Team, resources needing protection; response resources (boom, boat ramps, vessels, etc.) needed, site access and staging, tribal and local response community contacts, and local conditions (e.g. physical features, hydrology, currents and tides, winds and climate) that may affect response strategies. Note that GRPs only address protection of sensitive **public** resources. It is the responsibility of private resource owners and/or potentially liable parties to address protection of private resources (such as commercial marinas, private water intakes, and non-release aquaculture facilities).

Secondly, response strategies were developed based on the sensitive resources noted, hydrology, and climatic considerations. Individual response strategies identify the amount of boom necessary for implementation. The response strategies are then applied to Potential Spill Origins and trajectory modeling, and prioritized, taking into account factors such as resource sensitivity, feasibility, wind, and tidal conditions.

Draft strategy maps and matrices were sent out for review and consideration of strategy viability. Field verification was conducted for some strategies, and changes proposed by the participants were included in a semi-final draft, which was offered for final review to all interested parties and the participants of the field verification.

Finally, the general text of the GRP was compiled along with the site description, reference maps, and logistical support.

Items included in Logistical Support:

- Location of operations center for the central response organization;
- Local equipment and trained personnel;
- Local facilities and services and appropriate contacts for each;
- Site access & contacts;
- Staging areas;
- Helicopter and air support;
- Local experts;
- Volunteer organizations;
- Potential wildlife rehabilitation centers;
- Marinas, docks, piers, and boat ramps;
- Potential interim storage locations, permitting process;
- Damaged vessel safe-havens;
- Vessel repairs & cleaning;
- Response times for bringing equipment in from other areas.

2. SITE DESCRIPTION

South Puget Sound is comprised of numerous inlets and bays extending from Colvos Passage to Totten Inlet. The South Puget Sound area includes Case Inlet, Budd Inlet, Ed Inlet, Carr Inlet, Hammersly Inlet, Henderson Inlet and several other small areas. Oakland Bay, Pickering Passage, Hale Passage, Peale Passage, Dana Passage, Drayton Passage, Balch Passage, Nisqually Reach and North Bay are also covered.

Refer to Chapter 6 for detailed resource information.

2.1. Physical Features

South Puget Sound is comprised mostly of sand and gravel, and sand and cobble beaches. Much of the adjacent land is rural or conservancy, however, several population centers such as Shelton, Olympia and Tacoma have manmade features such as docks and marinas along the shore. Inlets, passages and small bays dominate the area. South Puget Sound includes the following shoreline habitats:[1]

Sand and cobble beaches
Sand and gravel beaches
Exposed tidal flats
Sheltered tidal flats
Marshes

Squaxin Island, located at the head of Totten Inlet, is an Indian Reservation. McNeil Island houses a state prison. Ferry routes connect several of the peninsulas and islands, and may need to be considered when attempting to reach a spill by motor vehicle.

2.2 Hydrology

Puget Sound is an estuary with a two-layer net flow. Surface waters are less saline due to freshwater inputs, and generally flow seaward. Deeper waters tend to flow landward. Vertical mixing takes place throughout the Sound in constricted or shallow areas, such as the Tacoma Narrows.[2]

2.3 Currents and Tides

The mean tidal range (MHW - MLW) for South Puget Sound is 9.4 to 10.48 feet. The diurnal tidal range (MHHW - MLLW) is 13.1 to 15.0 feet. Tidal ranges increase further south.[3]

South Puget Sound is made up almost entirely of inlets and narrow passages. Generally, currents in inlets are weak and variable and the currents through passages are strong. The currents range from approximately 1 to 2.5 knots.[4]

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[1] National Oceanic and Atmospheric Administration, Environmental Sensitivity Index, Central & Southern Puget Sound (Seattle: 1984).
[2] Evans Hamilton, Inc. and D.R. Systems, Inc., Puget Sound Environmental Atlas, vol. 1 (1987) 122-125.
[3] National Oceanic and Atmospheric Administration, Tide Tables West Coast of North and South America (1994).
[4] National Oceanic and Atmospheric Administration, Tidal Current Tables Pacific Coast of North America and Asia (1994).

Tides and currents vary with seasonal runoff and lunar cycles in localized areas. Spill responders should consult tide and current tables for their particular location.

2.4. Winds

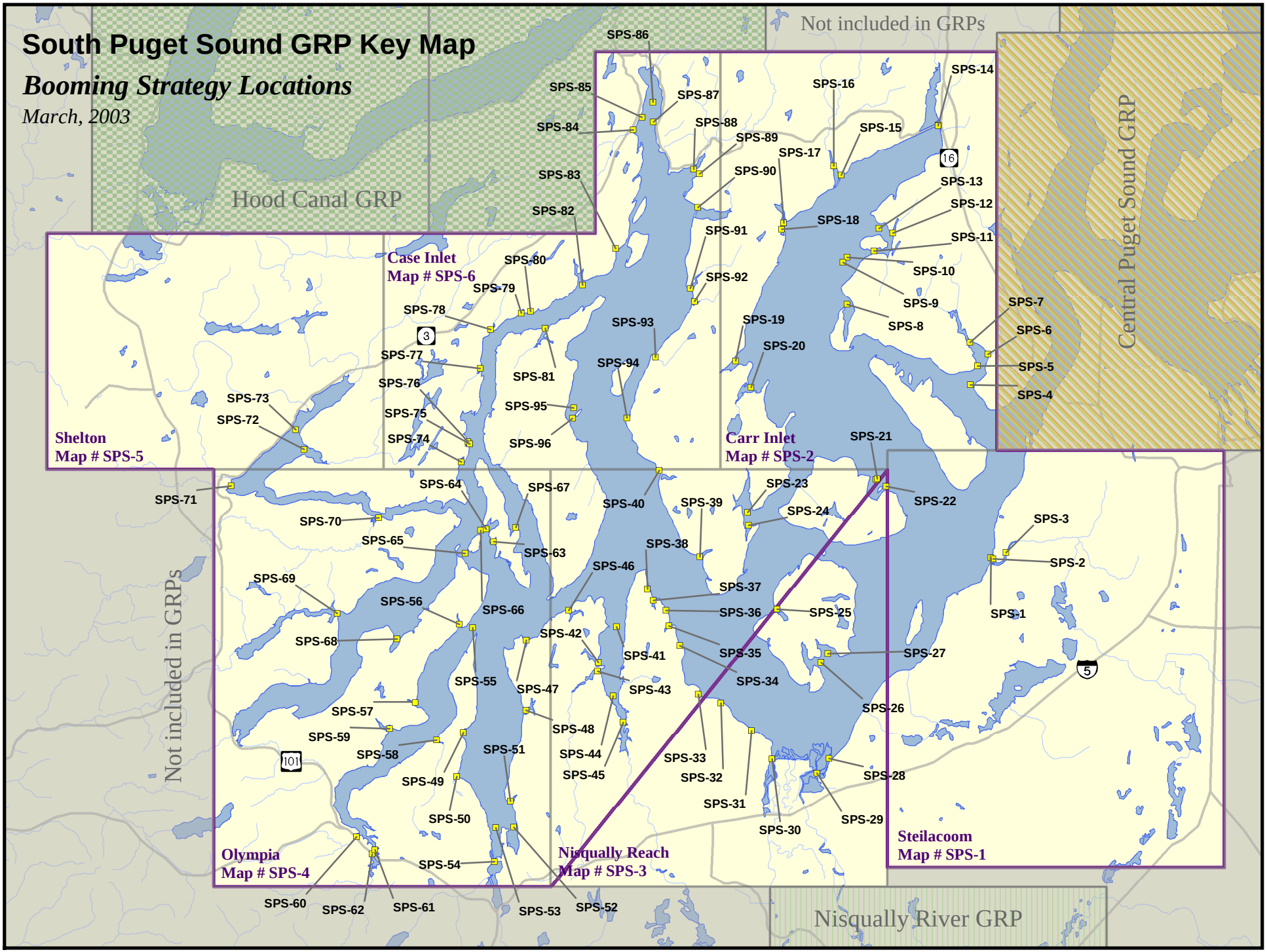
The winds in this area are a result of diverse topography including the Cascade and Olympic Mountains. The westerly winds from the Pacific appear to flow to the north and south around the Olympics, causing what is commonly known as the "Puget Sound Convergence" on the eastern side.

From October through March, winds are generally southwest at 10 to 20 mph. During the summer months, June through September, winds may be northeast or southwest at approximately 0 to 9 mph. Southwesterly winds at 10 to 20 mph dominate the area from April through May.[5] Local wind conditions may vary.

2.5. Climate

The area has a maritime climate with cool summers and mild winters. Annual precipitation is between 18 and 50 inches. Fog may cause visibility problems on about 25 to 40 days per year, usually in autumn and again in January and February.

[5] State of Washington Department of Natural Resources, Washington Marine Atlas, South Inland Waters, vol. 2 (1972).


South Puget Sound GRP Key Map
Booming Strategy Locations
March, 2003
Not included in GRPs
Hood Canal GRP
Central Puget Sound GRP
Not included in GRPs
Nisqually River GRP
Case Inlet
Map # SPS-6
Shelton
Map # SPS-5
Carr Inlet
Map # SPS-2
Olympia
Map # SPS-4
Nisqually Reach
Map # SPS-3
Steilacoom
Map # SPS-1
SPS-86
SPS-85
SPS-87
SPS-84
SPS-88
SPS-89
SPS-83
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SPS-35
SPS-34
SPS-26
SPS-28
SPS-29
16
3
101
5

4. GENERAL PROTECTION/COLLECTION STRATEGIES

4.1. Chapter Overview

This chapter details the specific response strategies and resources to protect as outlined by the participants of the GRP workshop for the South Puget Sound area. It describes the strategies determined for each area and the prioritization of those strategies. Note that GRPs only address protection of sensitive **public** resources. It is the responsibility of private resource owners and/or potentially liable parties to address protection of private resources (such as commercial marinas, private water intakes, and non-release aquaculture facilities).

Maps & Matrices

The maps in this chapter provide information on the specific location of booming strategies. They are designed to help the responder visualize response strategies. Details of each booming strategy are listed in corresponding matrix tables. Each matrix indicates the exact location, intent and implementation of the strategy indicated on the map. The "Status" column describes whether the strategy has been visited or tested in the field, and the date of the visit/test. Most strategies include a number for the corresponding shoreline photo, which is available on the Washington Department of Ecology's internet site at http://www.ecy.wa.gov/apps/shorephotos/.

Major Protection Techniques

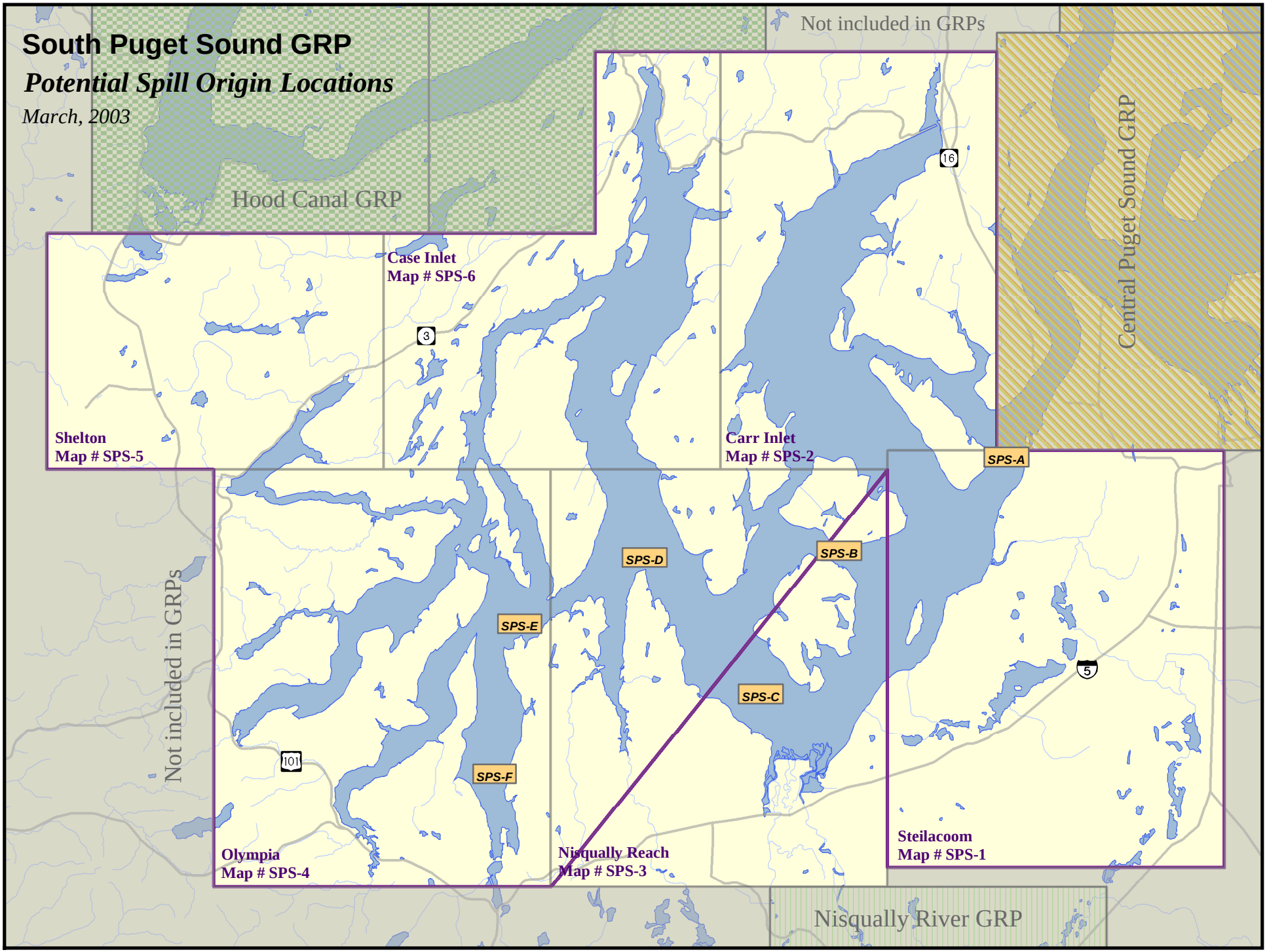
All response strategies fall into one of three major techniques that may be utilized either individually or in combination. The strategies listed in Section 4.2 are based on the following techniques, and are explained in detail in Section 4.3:

Dispersants: Washington State Policy currently does not allow use of dispersants in this area. Certain chemicals break up slicks on the water. Dispersants can decrease the severity of a spill by speeding the dissipation of certain oil types. Their use will require approval of the Unified Command. Dispersants will only be used in offshore situations under certain conditions, until further determinations are made by the Area Committee and published in the Area Contingency Plan.

In Situ Burning: Approval to burn in this area is unlikely due to the proximity of population to a potential burn site. Burning requires the authorization of the Unified Command, who determine conformance of a request to burn with the guidelines set forth in the Area Plan. This option is preferable to allowing a slick to reach the shore provided that population areas are not exposed to excessive smoke. Under the right atmospheric conditions, a burn can be safely conducted in relative close proximity to human population. This method works on many types of oil, and requires special equipment including a fire boom and igniters.

Mechanical Recovery and Protection Strategies: If a spill is too close to shore to use In Situ burning or dispersants, the key strategies are skimming and use of collection, diversion, or exclusion booming to contain and recover the oil, and prevent it from entering areas with sensitive wildlife and fisheries resources. These options are described in detail in Appendix A. Specific skimming strategies are not listed in the maps and matrices, but skimming should be used whenever possible and is often the primary means of recovering oil and protecting resources, especially when booming is not possible or feasible.

Priorities: The strategy priority tables (Section 4.2.) were developed using specific locations where spills are likely to occur. Trajectory modeling was used for each of these "Potential Spill Origins" to identify sensitive resources that would likely be impacted within the initial hours of the spill. A booming strategy priority table was developed for each of the "Potential Spill Origins" based on the sensitivity of resources, feasibility, etc. **Booming strategies should be deployed following the priority table for the "Potential Spill Origin" closest to the actual spill origin.** The map on page 4-2 shows the locations of all Potential Spill Origins for the South Puget Sound GRP. The booming strategies indicated in the priority tables are explained in detail in the Maps & Matrices section (Section 4.3.). It is implied that control and containment at the source is the number one priority of any response. If in the responder's best judgment this is not feasible, then the priorities laid out in the priority tables take precedence over containment and control.


South Puget Sound GRP
Potential Spill Origin Locations
March, 2003
Not included in GRPs
Hood Canal GRP
Central Puget Sound GRP
Case Inlet
Map # SPS-6
Shelton
Map # SPS-5
Carr Inlet
Map # SPS-2
SPS-A
SPS-B
SPS-C
SPS-D
SPS-E
SPS-F
Not included in GRPs
Olympia
Map # SPS-4
Nisqually Reach
Map # SPS-3
Steilacoom
Map # SPS-1
Nisqually River GRP
3
16
5
101

4.2.2 Booming Strategy Priority Tables

Table 4-1

Potential Spill Origin: SPS-A - Fox Island/Tacoma Narrows			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	SPS-21	4-10	Refer to South Puget Sound GRP for SPS strategies
2	SPS-22	4-10	
3	CPS-76	4-19	Refer to Central Puget Sound GRP for CPS strategies
4	CPS-77	4-19	
5	CPS-74	4-19	
6	CPS-75	4-19	
7	CPS-79	4-19	
8	CPS-78	4-19	
9	CPS-71	4-19	
10	SPS-1	4-8	Refer to South Puget Sound GRP for SPS strategies
11	SPS-7	4-9	
12	SPS-6	4-9	
13	SPS-4	4-9	
14	SPS-5	4-9	
15	CPS-73	4-19	Refer to Central Puget Sound GRP for CPS strategies
16	CPS-72	4-19	

Table 4-2

Potential Spill Origin: SPS-B - Combined Balch Passage and McNeil Island			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	SPS-21	4-10	
2	SPS-22	4-10	
3	SPS-23	4-10	
4	SPS-24	4-10	
5	SPS-25	4-10	
6	SPS-39	4-10	
7	SPS-26	4-10	
8	SPS-27	4-10	
9	SPS-1	4-8	
10	SPS-28	4-10	
11	SPS-29	4-10	
12	SPS-30	4-10	

Table 4-3

Potential Spill Origin: SPS-C - Nisqually National Wildlife Refuge			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	SPS-28	4-10	
2	SPS-29	4-10	
3	SPS-30	4-10	
4	SPS-26	4-10	
5	SPS-27	4-10	
6	SPS-25	4-10	
7	SPS-31	4-10	
8	SPS-32	4-10	
9	SPS-33	4-10	
10	SPS-34	4-10	
11	SPS-35	4-10	
12	SPS-36	4-10	
13	SPS-37	4-10	
14	SPS-39	4-10	
15	SPS-38	4-10	
16	SPS-23	4-10	
17	SPS-24	4-10	

Table 4-4

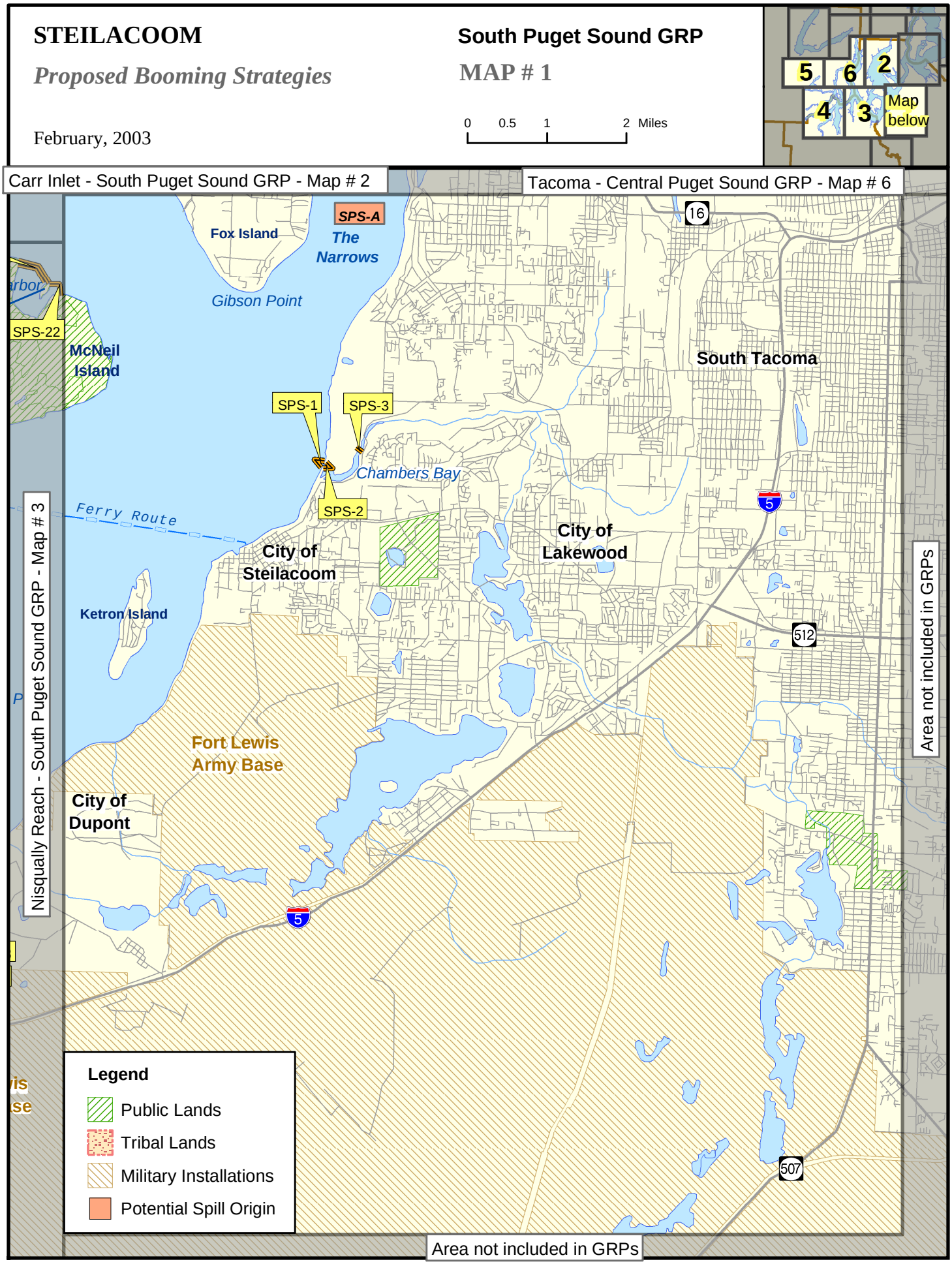
Potential Spill Origin: SPS-D – Johnson Point			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	SPS-41	4-10	
2	SPS-46	4-10	
3	SPS-38	4-10	
4	SPS-37	4-10	
5	SPS-36	4-10	
6	SPS-35	4-10	
7	SPS-34	4-10	
8	SPS-39	4-10	
9	SPS-25	4-10	
10	SPS-56	4-11	
11	SPS-55	4-11	
12	SPS-47	4-11	

Table 4-5

Potential Spill Origin: SPS-E – Boston Harbor			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	SPS-46	4-10	
2	SPS-47	4-11	
3	SPS-56	4-11	
4	SPS-65	4-11	
5	SPS-66	4-11	
6	SPS-64	4-11	
7	SPS-63	4-11	
8	SPS-39	4-10	
9	SPS-67	4-11	
10	SPS-49	4-11	
11	SPS-41	4-10	
12	SPS-48	4-11	
13	SPS-57	4-11	
14	SPS-50	4-11	

Table 4-6

Potential Spill Origin: SPS-F - Budd Inlet			
BOOMING PRIORITY	STRATEGY NUMBER	MAP PAGE NUMBER	COMMENTS
1	SPS-53	4-11	
2	SPS-52	4-11	
3	SPS-48	4-11	
4	SPS-51	4-11	
5	SPS-50	4-11	
6	SPS-49	4-11	
7	SPS-47	4-11	
8	SPS-46	4-10	
9	SPS-55	4-11	
10	SPS-56	4-11	
11	SPS-65	4-11	
12	SPS-66	4-11	
13	SPS-64	4-11	
14	SPS-63	4-11	
15	SPS-67	4-11	


STEILACOOM
Proposed Booming Strategies
February, 2003
South Puget Sound GRP
MAP # 1
0 0.5 1 2 Miles
5 6 2 4 3 Map below
Carr Inlet - South Puget Sound GRP - Map # 2
Tacoma - Central Puget Sound GRP - Map # 6
Nisqually Reach - South Puget Sound GRP - Map # 3
Area not included in GRPs
Area not included in GRPs
SPS-A
SPS-22
SPS-1
SPS-2
SPS-3
Fox Island
The Narrows
Gibson Point
McNeil Island
Chambers Bay
Ferry Route
Ketron Island
City of Steilacoom
City of Lakewood
South Tacoma
Fort Lewis Army Base
City of Dupont
16
5
512
507
Legend
Public Lands
Tribal Lands
Military Installations
Potential Spill Origin

CARR INLET

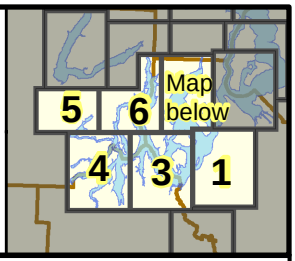
Proposed Booming Strategies

February, 2003

South Puget Sound GRP

MAP # 2

0 0.5 1 2 Miles



Belfair - Hood Canal GRP - Map # 6

Area not included in GRPs

Legend

- Public Lands
- Tribal Lands
- Military Installations
- Potential Spill Origin

Purdy
Burley Lagoon
Wauna
Minter Creek
302
Henderson Bay
SPS-14
SPS-15
SPS-16
SPS-86
SPS-87
SPS-88
SPS-89
Rocky Bay
Glen Cove
SPS-17
SPS-18
Thompson Spit
Key Peninsula
SPS-9
SPS-10
Cutts Island State Park
SPS-13
Lay Inlet
SPS-12
Raft Island
SPS-11
City of Gig Harbor
16
CPS-75
CPS-74
Tacoma - Central Puget Sound GRP - Map # 6
Case Inlet - South Puget Sound GRP - Map # 6
Kopachuck State Park
SPS-8
Horsehead Bay
SPS-7
SPS-6
Wollochet Bay
SPS-19
Von Geldern Cove
Carr Inlet
SPS-5
Hale Passage
Mayo Cove
Penrose Point State Park
SPS-20
SPS-4
Fox Island
McNeil Island
SPS-A
Steilacoom - South Puget South Puget Sound GRP - Map # 1
Narrows
Nisqually Reach - South Puget Sound GRP - Map # 3

NISQUALLY REACH

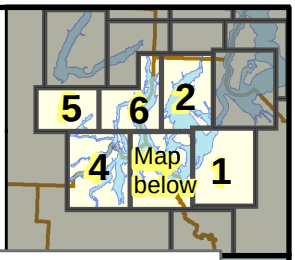
Proposed Booming Strategies

February, 2003

South Puget Sound GRP

MAP # 3

0 0.5 1 2 Miles



Case Inlet - South Puget Sound GRP - Map # 6

Carr Inlet - South Puget Sound GRP - Map # 2

Olympia - South Puget Sound GRP - Map # 4

Steilacoom - South Puget Sound GRP - Map # 1

Area not included in GRPs

McKenna - Nisqually River GRP - Map # 2

Case Inlet
Whitman Cove
Harstine Island
SPS-40
Longbranch
Filucy Bay
Pitt Passage
SPS-21
Still Harbor
Gertrude Island
SPS-22
SPS-23
SPS-24
Mahnckes Point
McNeil Island
SPS-67
SPS-39
Eagle Island State Marine Park
SPS-B
SPS-D
Johnson Point
Taylor Bay
Key Peninsula
Balch Passage
Ferry Route
Dana Passage
Poncin Cove
SPS-38
SPS-37
SPS-36
Drayton Passage
Anderson Island
SPS-25
Baird Cove
Big Fishtrap
SPS-41
SPS-46
Amsterdam Bay
Cliff Point
SPS-35
SPS-27
East Oro Bay
Henderson Inlet
SPS-34
Cole Point
Chapman Bay
SPS-42
West Oro Bay
SPS-26
SPS-43
Woodard Bay
Nisqually Reach
Lyle Point
SPS-33
Big Slough
SPS-C
Tolmie State Park
Butterball Cove
SPS-44
SPS-32
Hogum Bay
SPS-45
SPS-31
Luhr Beach
NR-12
SPS-30
NR-11
SPS-28
SPS-29
NR-10
Nisqually National Wildlife Refuge
Fort Lewis Army Base
NR-9
NR-8
McAllister Cr
Nisqually R
510
City of Lacey

Legend

- Public Lands
- Tribal Lands
- Military Installations
- Potential Spill Origin

Also see Nisqually River GRP - Map # 1 - Nisqually

Strategies in gray are covered by the Nisqually River GRP

OLYMPIA

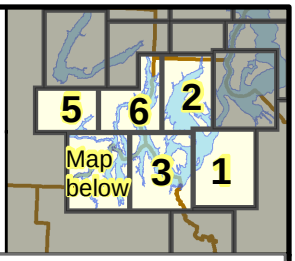
Proposed Booming Strategies

February, 2003

South Puget Sound GRP

MAP # 4

0 0.5 1 2 Miles



Shelton - South Puget Sound GRP - Map # 5

Case Inlet - South Puget Sound GRP - Map # 6

Area not included in GRPs

Nisqually Reach - South Puget Sound GRP - Map # 3

Area not included in GRPs

Harstine Island
Peale Passage
Squaxin Island Indian Reservation
Potlatch Point
Pelela Bay
Hope Island
Carlyon Beach
Squaxin Island State Park
Hammersley Inlet
Mill Creek
Totten Inlet
Sanderson Harbor
Little Skookum Inlet
Kamilche Point
Gallagher Cove
Cooper Point
Zangle Cove
Boston Harbor
Oyster Bay
Frye Cove
Young Cove
Green Cove
Tykel Cove
Eld Inlet
Budd Inlet
Gull Harbor
Butler Cove
Priest Point Park
Ellis Cove
West Bay
East Bay
City of Olympia
Capitol Lake
McLane Creek
Perry

SPS-71
SPS-70
SPS-66
SPS-67
SPS-64
SPS-63
SPS-65
SPS-69
SPS-56
SPS-55
SPS-E
SPS-47
SPS-68
SPS-48
SPS-57
SPS-49
SPS-59
SPS-58
SPS-F
SPS-50
SPS-51
SPS-52
SPS-53
SPS-60
SPS-61
SPS-62
SPS-54

101
8
5

Legend

- Public Lands
- Tribal Lands
- Military Installations
- Potential Spill Origin

SHELTON

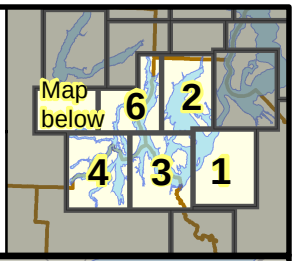
Proposed Booming Strategies

February, 2003

South Puget Sound GRP

MAP # 5

0 0.5 1 2 Miles



Legend

- Public Lands
- Tribal Lands
- Military Installations
- Potential Spill Origin

Potlatch State Park

Union

Skokomish River

Union - Hood Canal GRP - Map # 5

Skokomish Tribal Lands

Area not included in GRPs

Case Inlet - South Puget Sound GRP - Map # 6

101

102

3

Shelton Bayshore Golf Club

SPS-73

SPS-72

City of Shelton

Oakland Bay

Chapman Cove

Area not included in GRPs

Goldsborough Creek

Olympia - South Puget Sound GRP - Map # 4

Hammersley Inlet

SPS-71

SPS-7

Mill Creek

CASE INLET

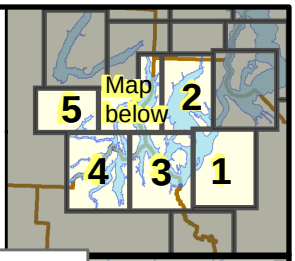
Proposed Booming Strategies

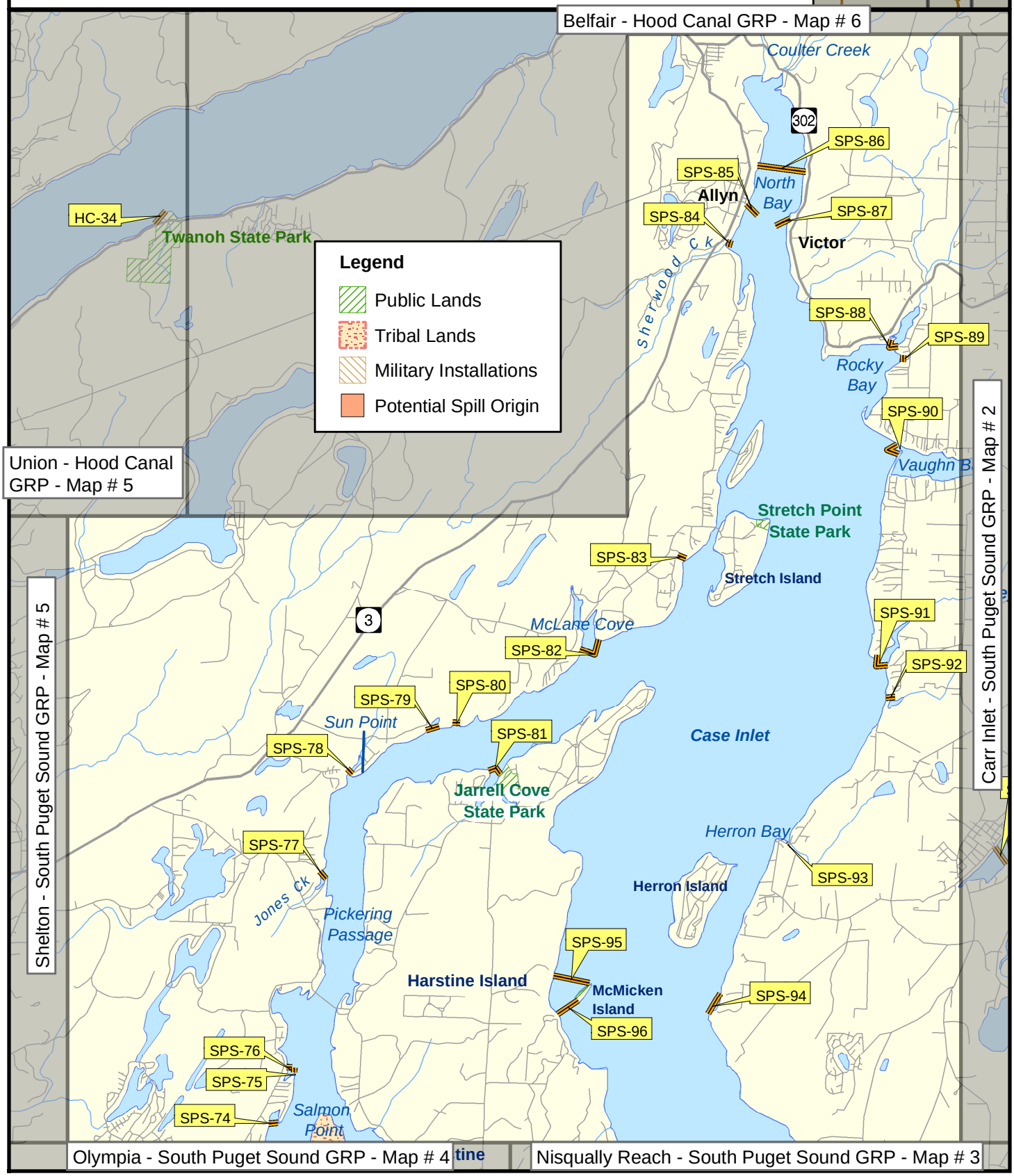
February, 2003

South Puget Sound GRP

MAP # 6

0 0.5 1 2 Miles





4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-1		Chambers Bay PIE0145 47º-11.25'N 122º-35.00'W	Exclusion booming - Keep oil out of Chambers Bay.	400'	Deploy boom in a chevron configuration on the west side of the railroad trestle to keep oil out of the bay.	Boise Cascade	Chambers Creek Road.	Fish ladder, salmonids, creek estuary.
SPS-2		Chambers Bay PIE0145 47º-11.24'N 122º-34.97'W	Containment booming - Keep spill inside the bay.	400'	Deploy boom in a chevron configuration on the east side of the railroad trestle to keep oil in the bay.	Steilacoom	Chambers Creek Road.	Fish ladder, salmonids, creek estuary.
SPS-3		Chambers Bay PIE0146 47º-11.44'N 122º-34.40'W	Exclusion booming - Keep oil out of the fish ladder.	200'	Deploy boom across the north end of the bay to keep oil out of the fish ladder and trap.	Steilacoom	Chambers Creek Road.	Fish ladder, salmonids, creek estuary.
SPS-4		Wollochet Bay PIE0481 47º-16.01'N 122º-35.79'W	Deflection/ Collection - Keep oil out of bay.	2000'	Anchor to boat ramp near old ferry dock, tend end w/ boat (30" boom in high winds).	Wollochet close to Tacoma Narrows Airport.	Road access around entire bay. Private property access to boat ramp for (a).	Herring smelt and sandlance spawning, juvenile crab & geoduck.
SPS-5		Wollochet Bay PIE0460 47º-16.24'N 122º-36.69'W	Deflection/ Collection - Keep oil out of bay.	2000'	Anchor to cement bulkhead just around point near E Cromwell, tend end w/ boat (30" boom in high winds).	same as above.	same as above.	same as above.
SPS-6		Sullivan Creek PIE0477 47º-16.80'N 122º-35.34'W	Exclusion booming - Keep oil out of creek.	400'	Deploy boom in a chevron configuration across the creek mouth.	same as above.	same as above.	same as above.
SPS-7		Wollochet Bay PIE0474 47º-17.18'N 122º-36.17'W	Exclusion booming - Keep oil out of the head of the bay.	1500'	Exclude end of bay w/ chevron formation.	same as above.	same as above.	same as above.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-8		Horse Head Bay PIE0436 47º-17.79'N 122º-41.02'W	Exclusion Booming - Keep oil out of bay.	2000'	Deploy boom to close off bay.	Forest Beach or Kopachuck State Park. Boat ramp on SE end of Horse Head Bay.	Boat	Fisheries and wildlife (uncertain about resources, may be low priority).
SPS-9		Cuts Island - South End PIE0423 47º-19.19'N 122º-41.27'W	Exclusion Booming - Keep oil off island.	1200'	Deploy boom in a chevron configuration to protect the south end of the island.	Purdy or Gig Harbor.	Boat	Shellfish & State Park, Harbor seal haulout.
SPS-10		Cuts Island - North End PIE0423 47º-19.57'N 122º-41.81'W	Exclusion Booming - Keep oil off island.	1200'	Deploy boom in a chevron configuration to protect the north end of the island.	Purdy or Gig Harbor.	Boat	Shellfish & State Park, Harbor seal haulout.
SPS-11		Raft Island PIE0415 47º-19.52'N 122º-40.03'W	Exclusion Booming - Keep oil off island.	800'	Boom along bridge w/800' boom.	Purdy or Gig Harbor.	Road access from bridge, access via private property N. side of Is. and small bay on mainland, road access to E side of Lay Inlet.	Clams, harbor seal haulouts and shellfish.
SPS-12		Lay Inlet PIE0407 47º-20.04'N 122º-39.31'W	Exclusion Booming - Keep oil out of Lay Inlet.	600'	Boom mouth of Lay Inlet.	Purdy or Gig Harbor.	same as above.	Clams, harbor seal haulouts and shellfish.
SPS-13		Raft Island PIE0418 47º-20.15'N 122º-39.86'W	Exclusion Booming - Keep oil off island.	2000'	Boom north side of island w/ 2000' from large floating dock on island to shoreline directly to the north.	Purdy or Gig Harbor.	same as above.	Clams, harbor seal haulouts and shellfish.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-14		Burley Lagoon PIE0387 47º-23.03'N 122º-37.60'W	Exclusion Booming - Keep oil out of lagoon.	2000'	Double chevron @ entrance to lagoon. Anchor both to powerline tower and NE bridge abutment. Need - (2) 100lb anchors @ apex.	Purdy	Good road access from Hwy 302.	Wildlife, shellfish, juvenile salmon and waterfowl concentration.
SPS-15		Minter Creek PIE0354 47º-21.55'N 122º-41.50'W	Exclusion Booming - Keep oil out of creek.	1000'	Close off creek with chevron, can use trees on N side of creek as anchors.	Boat launch @ Wauna.	Land access to Sunrise and Minter Beaches.	Minter Creek Hatchery, archeological site and shellfish.
SPS-16		Minter Creek PIE0355 47º-21.85'N 122º-41.77'W	Exclusion Booming - Keep oil out of creek.	500'	Deploy boom running NE/SW along pilings about 1/8 mile upstream from Oyster Co.	Boat launch @ Wauna.	Land access to Sunrise and Minter Beaches.	Minter Creek Hatchery, archeological site and shellfish.
SPS-17		Glen Cove PIE0346 47º-20.38'N 122º-43.73'W	Exclusion Booming - Keep oil out of cove.	1000'	Deploy boom in a chevron configuration across the mouth of Glen Cove.	Glen Cove boat launch in Wauna.	Boat	Cove, shoreline, fisheries.
SPS-18		Thompson Spit PIE0340 47º-20.04'N 122º-43.76'W	Exclusion Booming - Keep oil out of cove.	200'	Deploy boom in a chevron configuration across the mouth of the cove.	Glen Cove boat launch in Wauna.	Boat	Cove, shoreline, fisheries.
SPS-19		Van Geldern Cove PIE0322 47º-16.44'N 122º-45.41'W	Exclusion Booming - Keep oil out of cove.	2000'	Place boom at launch ramp on north shore across to closest point on south shore. Anchor at middle.	City of Home.	Road access on both sides of cove.	Salmon spawning creek, waterfowl, brant.
SPS-20		Mayo Cove (Penrose State Park) 47º-15.75'N 122º-44.81'W	Diversion Booming - Isolate small bay on south shore of cove.	2000'	Angle NE from spit (PIE0316) to wooden bulkhead at Penrose State Park (PIE0310).	Penrose State Park.	Boat launch and good roads; State Parks.	Sensitive nesting species, seabird concentrations, surf smelt, herring, & sandlance spawning.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-21		Still Harbor - SE McNeil PIE0596 47º-13.30'N 122º-39.68'W	Exclusion Booming - Prevent oil from entering harbor.	5000'	Double chevron from Baldwin Pt. to Gertrude Is.	Possible to stage from the penitentiary (security issue high priority on McNeil Island). Foss has access to island.	Boat access only. Road exists but security clearance necessary. Must clear any operations with prison staff.	Marine mammal haulout, 400 seals (one of largest). Shellfish, waterfowl, great blue heron.
SPS-22		Still Harbor - SE McNeil PIE0592 47º-13.08'N 122º-39.40'W	Exclusion Booming - Prevent oil from entering harbor.	2000'	Double chevron from Gertrude Is. to E shore. Need - (2) 100# anchors @ each apex = total of 100# anchors.	same as above.	same as above.	same as above.
SPS-23		North Filucy Bay PIE0278 47º-12.43'N 122º-44.83'W	Exclusion Booming - Keep oil out of bay.	2000'	Deploy boom across the entrance to the north part of the bay from Mahnckes Point to the beach directly to the west.	Longbranch	Limited road access. County boat launch outside bay to the south.	Protect archaeological and shellfish sites.
SPS-24		South Filucy Bay PIE0266 47º-11.86'N 122º-44.75'W	Exclusion Booming - Keep oil out of bay.	1500'	Deploy boom across the entrance to the south part of the bay.	Longbranch	Limited road access. County boat launch outside bay to the south.	Protect archaeological and shellfish sites.
SPS-25		Amsterdam Bay (NW side of Anderson I.) PIE0675 47º-21.85'N 122º-41.77'W	Exclusion booming - Keep oil out of bay.	1000'	Boom off bay with chevron formation. Need shore anchors and 100# anchor at apex. Bay is shallow: 10'-20' at mouth.	Steilacoom	Boat access on south shore.	Clams, herring and sandlance.
SPS-26		Anderson Island - West Oro Bay PIE0641 47º-08.29'N 122º-42.03'W	Exclusion booming - Keep oil out of bay.	2200'	Boom west bay with chevron. Attach intertidal boom to each shoreside leg end if available.	Steilacoom	Some road access to Lyle and Cole Points. Strategy best implemented by water.	Birds, high value clam beds, Dungeness Crab.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-27		Anderson Island - East Oro Bay PIE0646 47º-08.64'N 122º-41.53'W	Exclusion booming - Keep oil out of bay	2800'	Boom east bay in a chevron configuration. Attach intertidal boom to each shoreside leg end. If the strategy cannot be deployed as described, or if winds are likely to drive oil past the boom, back up the strategy with 200' to prevent oil from entering the slough.	Steilacoom	Some road access to Lyle and Cole Points. Strategy best implemented by water.	Birds, high value clam beds, Dungeness Crab.
SPS-28		Nisqually NWR/ Nisqually River Sloughs THU0006 47º-05.68'N 122º-41.26'W	Exclusion booming - Keep oil out of sloughs.	400'	Deploy boom across the entrance to the sloughs to the east of the Nisqually River.	Nisqually NWR - reach through Thurston Co. EMD. Barn could be command post & bird care center.	Dike behind refuge office. Very shallow area - may need to implement from Nisqually River side.	Waterfowl, fish, wetland area.
SPS-29		Nisqually NWR/ Nisqually River Sloughs THU0007 47º-05.23'N 122º-41.73'W	Exclusion booming - Keep oil out of sloughs.	400'	Deploy boom across the slough to the east of the Nisqually River at the foot bridge.	same as above.	same as above.	same as above.
SPS-30		McAllister Creek THU0025 47º-05.55'N 122º-43.56'W	Exclusion booming - Keep oil out of creek.	1200'	Exclusion boom across McAllister Creek at Luhr Beach (move upstream if upstream spill from I-5).	Could be command post and bird care center.	Luhr Beach (busy); Zittel's or Martin Way access to McAllister.	Hatchery, bird and fish habitat, public use area.
SPS-31		Cove in Hogum Bay THU0029 47º-06.37'N 122º-44.37'W	Exclusion - Keep oil out of cove.	100'	Deploy boom across the mouth of the cove.	Zittel's Marina or Tolmie State Park.	Access via boat.	Protect bird foraging area, crabs, clams, marsh habitat.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-32		Butterball Cove THU0032 47º-07.11'N 122º-45.62'W	Exclusion - Keep oil out of cove.	100'	Deploy boom across the mouth of the cove.	Zittel's Marina or Tolmie State Park.	Access via boat.	Protect bird foraging area, crabs, clams, marsh habitat.
SPS-33		Big Slough THU0034 47º-07.31'N 122º-46.52'W	Exclusion - Keep oil out of slough.	300'	Deploy boom across the mouth of the slough.	Zittel's Marina or Tolmie State Park.	Access via boat.	Protect bird foraging area, crabs, clams, marsh habitat.
SPS-34		Small cove south of Mill Bight THU0039 47º-08.63'N 122º-47.34'W	Exclusion - Keep oil out of cove.	100'	Deploy boom across the mouth of the cove.	Zittel's Marina or Tolmie State Park.	Access via boat.	Protect bird foraging area, crabs, clams, marsh habitat.
SPS-35		Mill Bight THU0042 47º-09.21'N 122º-47.78'W	Exclusion - Keep oil out of cove.	300'	Deploy boom across the mouth of the cove.	Zittel's Marina or Tolmie State Park.	Access via boat.	Protect bird foraging area, crabs, clams, marsh habitat.
SPS-36		Small cove south of Baird Cove THU0045 47º-09.57'N 122º-47.93'W	Exclusion - Keep oil out of cove.	100'	Deploy boom across the mouth of the cove.	Zittel's Marina or Tolmie State Park.	Access via boat.	Protect bird foraging area, crabs, clams, marsh habitat.
SPS-37		Baird Cove THU0047 47º-09.82'N 122º-48.49'W	Exclusion - Keep oil out of cove.	500'	Deploy boom across the mouth of the cove.	Zittel's Marina or Tolmie State Park.	Access via boat.	Protect bird foraging area, crabs, clams, marsh habitat.
SPS-38		Poncin Cove THU0052 47º-10.16'N 122º-48.68'W	Exclusion - Keep oil out of cove.	100'	Deploy boom across the mouth of the cove.	Zittel's Marina or Tolmie State Park.	Access via boat.	Protect bird foraging area, crabs, clams, marsh habitat.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-39		Taylor Bay PIE0249 47º-11.12'N 122º-46.58'W	Exclusion booming - Keep oil out of bay.	1200'	Form chevron - anchor to pilings on north shore and private boat ramp on south shore.	RFK Park - DNR recreation area.	Road access via Whitman Road and Taylor Bay Road.	Shellfish (clams); waterfowl.
SPS-40		Whitman Cove PIE0239 47º-13.25'N 122º-48.33'W	Valve closure - Keep oil out of cove.	100'	Turn off valves to cut off sluice ways (talk to DNR about tide gates). Deploy boom if necessary.	RFK Park - DNR recreation area.	Road access via Bay Road.	Seabird concentrations.
SPS-41		Henderson Inlet THU0104 47º-09.08'N 122º-49.95'W	Exclusion booming - Keep oil out of lower bay and mudflats.	2800'	Deploy boom at an angle across bay, from Cliff Point to the opposite shore.	Boat ramp East shore of Henderson Inlet.	By Boat from Olympia or Tacoma or from I-5 take Sleater Kinney Road NE to Bay Road NE, turn right, proceed to Henderson Road until you see boat launch ramp sign, follow road to boat launch. Johnson Point community boat ramp/private beach, Dr. Gevorian, 822 Libby Road, 4-wheel drive beach access.	Sensitive nesting species; great blue heron; marine mammal haulout, waterfowl concentration.
SPS-42		Chapman Bay THU0093 47º-08.13'N 122º-50.58'W	Exclusion booming - Keep off mud flats and lower bay.	1000'	Boom off mouth of the bay.		Woodard Bay Park; Private boat ramp on 86th (east side of Henderson) will rent out.	Same as above plus seabird concentrations.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-43		Woodard Bay THU0084 47º-07.89'N 122º-50.55'W	Exclusion booming.	400'	Boom off mouth of the bay at the bridge.		Woodard Bay Park; Private boat ramp on 86th (east side of Henderson) will rent out.	Same as above.
SPS-44		Henderson Inlet THU0081 47º-07.20'N 122º-49.95'W	Exclusion - Keep oil out of lower bay and mudflats.	1800'	Deploy boom in a chevron configuration where bay begins to narrow down and get shallow.	Boat ramp East shore of Henderson Inlet.	same as above.	Same as above.
SPS-45		Henderson Inlet "neck" THU0079 47º-06.69'N 122º-49.54'W	Exclusion - Keep oil out of lower bay and mudflats.	900'	Deploy boom across the inlet just north of the portion that becomes a mudflat at low tide.	Zittel's Marina or Tolmie State Park.	Access via boat.	Same as above.
SPS-46		Big Fishtrap THU0111 47º-09.46'N 122º-51.79'W	Exclusion - Keep oil out of the lagoon.	800'	Boom off Lagoon.	Boston Harbor Marina.		
SPS-47		Zangel Cove THU0121 47º-08.64'N 122º-53.48'W	Exclusion booming - Keep oil out of cove.	500'	Boom off cove.	Port of Olympia.	Dirt road access - off Zangel Cove (get address from Don Schluter).	Sensitive nesting species, Great Ble Heron, Marine mammal haulout, waterfowl, and seabird concentrations.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-48		Gull Harbor THU0131 47º-06.75'N 122º-53.46'W	Exclusion booming - Keep oil out of harbor.	400'	Boom off harbor mouth.	Boston Harbor Marina.	Boston Harbor Marina.	Sensitive nesting species, Great Blue Heron, marine mammal haulout, waterfowl, and seatbird concentraions, natural undeveloped smelt spawning beaches.
SPS-49		Tykel Cove THU0178 47º-06.01'N 122º-55.91'W	Exclusion booming - Keep oil out of cove.	1800'	Boom off cove.	Port of Olympia.	Port of Olympia boat ramp (East Bay Marina) or Gull Harbor.	Sensitive nesting species, Great Ble Heron, Marine mammal haulout, waterfowl, and seabird concentrations.
SPS-50		Butler Cove THU0172 47º-04.90'N 122º-56.06'W	Exclusion booming - Keep oil out of cove.	500'	Boom off cove.	Port of Olympia.	Port of Olympia boat ramp (East Bay Marina) or Gull Harbor.	Sensitive nesting species, Great Ble Heron, Marine mammal haulout, waterfowl, and seabird concentrations.
SPS-51		Priest Point Park THU0140 47º-04.27'N 122º-53.91'W	Exclusion from Ellis Cove.	400'	Keep oil out of Ellis Cove.	East Bay Marina.	East Bay Marina.	Sensitve cove waterfowl, Osprey nests, Salmon runs, and public recreation area, salt marsh.
SPS-52		East Bay - Budd Inlet THU0149 47º-03.55'N 122º-53.78'W	Containment Booming - Keep oil inside bay if spill at port or I-5.	1600'	Boom off harbor mouth.	East Bay Marina.	East Bay Marina.	Diving ducks, scoters, canvas back, Barrows Goldeneye.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-53		West Bay - Budd Inlet THU0147 47º-03.50'N 122º-54.47'W	Containment Booming - Keep oil inside bay if spill at port or I-5.	2000'	Boom off harbor mouth.	East Bay Marina.	East Bay Marina.	Concentration of diving ducks: scoters, canvasbacks, Barrows goldeneye.
SPS-54		Capitol Lake THU0163 47º-02.62'N 122º-54.48'W	Containment - Keep oil in lake if spill from I-5.	200'	Close dam and bring vac trucks to west shoreline (old swimming beach). Boom off area around tide gate to prevent entrainment.	Capitol Lake parking lot.	5th Avenue.	Puget Sound Resources.
SPS-55		Mouth of Eld Inlet THU0188 47º-08.95'N 122º-55.68'W	Deflection/ Collection - Keep oil out of inlet.	2200'	Boom at 35 degree angle.	Port of Olympia; Frye Cove; Caroline beach.	Sanderson Harbor? shore? for vac trucks, recovery.	
SPS-56		Sanderson Harbor THU0268 47º-08.99'N 122º-56.17'W	Exclusion - Keep oil out of harbor.	300'	Deploy boom across entrance to harbor.	Frye Cove Co. Park (restricted boat launch); Keys Ways Marina.	Frye Cove Co. Park (restricted boat launch); Keys Ways Marina.	
SPS-57		Frye Cove THU0258 47º-06.86'N 122º-57.83'W	Exclusion - Keep oil out of cove.	500'	Boom across cove.	Frye Cove Co. Park (restricted boat launch); Keys Ways Marina.	Frye Cove Co. Park (restricted boat launch); Keys Ways Marina.	
SPS-58		Green Cove THU0201 47º-05.86'N 122º-56.93'W	Exclusion booming - Keep oil out of cove.	700'	Boom off Green Cove.	Port of Olympia boat ramp East Bay.	Evergreen College boat ramp.	Harbor seal haulout.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-59		Young Cove THU0249 47º-06.14'N 122º-58.82'W	Exclusion - Keep oil out of cove.	800'	Boom across cove.	Frye Cove Co. Park (restricted boat launch); Keys Ways Marina.	Frye Cove Co. Park (restricted boat launch); Keys Ways Marina.	
SPS-60		Perry Creek THU0229 47º-03.16'N 123º-00.02'W	Exclusion - Keep oil out of creek.	100'	Boom across mouth of creek at bridge on Madrona Beach Drive.	Park and ride lot south of bridge.	By land using a small skiff, or by boat from Taylor United and Ellison Oyster Co.	
SPS-61		McLane Creek, ebb tide strategy THU0227 47º-02.82'N 122º-59.27'W	Exclusion/ Collection - Keep oil in inlet and out of creek if spill from Hwy 101.	300'	Angle boom from southwest corner of bridge over Mud Bay Road to shoreline northeast of bridge, access for vac trucks on northeast side.	Large parking lot at tavern near bridge, ask permission for use.	By land using a small skiff, or by boat from Taylor United and Ellison Oyster Co.	
SPS-62		McLane Creek, flood tide strategy THU0220 47º-02.71'N 122º-59.35'W	Exclusion/ Collection - Keep oil in inlet and out of creek if spill from Hwy 101.	300'	Angle boom from northwest corner of bridges over highway 101 to shoreline southeast of bridges, access for vac trucks on southeast side.	Wide shoulder at highway 101, parking area at southeast corner of bridges.	By land using a small skiff, or by boat from Taylor United and Ellison Oyster Co.	
SPS-63		Squaxin Island, cove south of Polela Bay MAS0280 47º-11.32'N 122º-54.90'W	Exclusion - Keep oil out of cove.	600'	Deploy boom across mouth of cove.	Boston Harbor marina.	Boston Harbor Marina, Carlyon Beach boat ramp (private).	
SPS-64		Squaxin Island, Polela Bay MAS0275 47º-11.65'N 122º-55.19'W	Exclusion - Keep oil out of bay.	1500'	Deploy boom across mouth of bay.	Boston Harbor marina.	Boston Harbor Marina, Carlyon Beach boat ramp (private).	

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-65		Hope Island to Carlyon Beach 47º-10.95'N 122º-56.00'W	Exclusion	1800'	Deploy boom from the south end of Hope Island (MAS0260) to Carlyon Beach (THU0279).	Boston Harbor marina.	Boston Harbor Marina, Carlyon Beach boat ramp (private).	Protect fish and wildlife resources in Hammerley and Totten Inlets.
SPS-66		Squaxin Island to Hope Island 47º-11.60'N 122º-55.43'W	Exclusion	1500'	Deploy Boom from Potlatch Point on Squaxin Island (MAS0274) to the north end of Hope Island (MAS0263).	Boston Harbor marina.	Boston Harbor Marina, Carlyon Beach boat ramp (private).	Protect fish and wildlife resources in Hammerley and Totten Inlets.
SPS-67		Squaxin Island Net Pens MAS0299 47º-11.83'N 122º-54.21'W	Exclusion booming - Keep oil away from fish pens.	4800'	Diamond boom around net pens using floats to anchor (pens are comanaged by state and Squaxin Tribe).	Park at Squaxin Island.	Boston Harbor Marina, Carlyon Beach boat ramp (private) - no shoreline access.	Salmon stock. Note - location of high priority stocks changes. Need to get current layout when spill occurs.
SPS-68		Totten Inlet/Gallagher Cove THU0291 47º-08.57'N 122º-58.64'W	Deflection booming - Keep oil out of cove.	1000'	Place boom acrooss mouth of cove.	Boston Harbor marina.	Boston Harbor marina.	Waterfowl, clams & oysters.
SPS-69		Little Skookum Inlet MAS0020 47º-09.22'N 123º-01.08'W	Containment booming - Keep spill out of inlet.	1000'	Boom mouth of inlet from Kamilche Point to Lynch Road.		Lynch Road launch at Arcadia.	
SPS-70		Mill Creek in Hammersley Inlet MAS0068 47º-11.87'N 122º-59.53'W	Exclusion - Keep oil out of Mill Creek.	500'	Boom across Miller Creek.	Small launch - possible.	Carlyon Beach Marina, Olympia or Arcadia launch - Arcadia Point.	Sensitive species nesting in area; fisheries.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-71		Goldsborough Creek MAS0086 47º-12.60'N 123º-05.48'W	Exclusion - Keep oil out of Goldsborough Creek.	100'	Close off entrance to creek.	In Shelton at mill.	In Shelton at Mill.	Salmon Stream.
SPS-72		Chapman Cove MAS0120 47º-13.65'N 123º-02.57'W	Exclusion - Keep oil out of cove.	1800'	Boom off entrance to Chapman Cove.	Sunset Road?	Shelton Launch.	Clams, fish, and archaeological sites.
SPS-73		Oakland Bay MAS0113 47º-12.60'N 123º-03.00'W	Exclusion booming.	1500'	Close off inlet at Golf Course to Daniels Road.	Golf Course and Highway 3.	Boat launch at Shelton. Highway 3 near Bay Shore golf course.	Mudflats, marine mammal haulouts.
SPS-74		Cove west of Salmon Point on west shore of Pickering Passage MAS0156 47º-13.47'N 122º-56.28'W	Exclusion - Keep oil out of cove.	600'	Deploy boom across mouth of cove.	Public boat ramp at bridge to Hartstene Island.	Access via boat.	
SPS-75		Small channel to cove in SPS-74 MAS0159 47º-14.01'N 122º-56.00'W	Exclusion - Keep oil out of cove.	100'	Deploy boom across channel.	Public boat ramp at bridge to Hartstene Island.	Access via boat.	

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-76		Cove just north and west of Salmon Point on west shore of Pickering Passage MAS0160 47º-14.13'N 122º-56.08'W	Exclusion - Keep oil out of cove.	200'	Deploy boom across cove at bridge to island.	Public boat ramp at bridge to Hartstene Island.	Access via boat.	
SPS-77		Jones Creek MAS0170 47º-16.03'N 122º-55.67'W	Exclusion - Keep oil out of creek and estuary.	500'	Boom off entrance to cove leading to estuary and creek.	Jarrell Cove State Park or boat ramp at bridge to Hartstene Is.	Access via boat.	
SPS-78		Cove inside Sun Point MAS0177 47º-17.05'N 122º-55.32'W	Exclusion - Keep oil out of cove.	400'	Deploy boom across entrance to cove.	Jarrell Cove State Park.	Access via boat.	
SPS-79		West cove across Pickering Passage from Jarrell Cove MAS0180 47º-17.59'N 122º-54.06'W	Exclusion - Keep oil out of cove.	1000'	West cove, anchor from bulkhead on west side to point, 100# anchor in middle.	Jarrell Cove State Park.	Access via boat.	
SPS-80		Center cove across Pickering Passage from Jarrell Cove MAS0181 47º-17.60'N 122º-53.72'W	Exclusion - Keep oil out of cove.	300'	Center cove, anchor to bluff on west side, 100# anchor in middle.	Jarrell Cove State Park.	Access via boat.	

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-81		Jarrell Cove MAS0372 47º-17.15'N 122º-53.11'W	Exclusion - Keep oil out of cove, protect Jarrell Cove State Park.	1000'	Boom off cove with chevron configuration.	Jarrell Cove State Park.	Carlyon Beach boat ramp (private); full facilities at park.	State Park.
SPS-82		McLane Cove MAS0191 47º-18.59'N 122º-51.76'W	Exclusion Booming - Keep oil out of cove.	2000'	Boom off cove with chevron formation.	Jarrell Cove State Park.	Grapeview Loop Rd./Jarrell Cove State Park.	
SPS-83		Small slough just west of Stretch Island MAS0200 47º-19.40'N 122º-50.38'W	Exclusion - Keep oil out of slough.	200'	Deploy boom across entrance to slough, primarily to north.	Jarrell Cove State Park.	Access via boat.	
SPS-84		Sherwood Creek and estuary MAS0238 47º-22.53'N 122º-50.06'W	Exclusion - Keep oil out of bay/estuary.	500'	Deploy boom across bay at the bridge on Grapeview Loop Road.	Victor and/ or Allyn.	Access via Hwy 302 to both sides of bay. Need shallow draft boats.	Wetlands, mudflats, and Coulter Creek hatchery, winter concentrations of Grebes & Murres.
SPS-85		Case Inlet (North Bay) MAS0241 47º-23.09'N 122º-49.53'W	Deflection/ Collection - Keep oil out of bay.	1000'	Deploy deflection boom at Allyn (angled SE) Collect oil w/ vac trucks.	Victor and/ or Allyn.	Access via Hwy 302 to both sides of bay. Need shallow draft boats.	Wetlands, mudflats, and Coulter Creek hatchery, winter concentrations of Grebes & Murres.
SPS-86		Coulter Creek MAS0249 47º-23.43'N 122º-49.09'W	Exclusion Booming - Keep oil out of creek.	4000'	Deploy boom at the power lines, using the towers as anchor points.	Victor and/ or Allyn.	Access via Hwy 302 to both sides of bay. Need shallow draft boats.	Coho, Chinook & Chum. Winter concentrations of Grebes & Murres.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-87		Case Inlet (North Bay) MAS0254 47º-22.74'N 122º-48.97'W	Deflection/ Collection - Keep oil out of bay.	1000'	Deploy deflection boom at Victor (angled SW) Collect oil w/ vac trucks.	Victor and/ or Allyn.	Access via Hwy 302 to both sides of bay. Need shallow draft boats.	Wetlands, mudflats, and Coulter Creek hatchery, winter concentrations of Grebes & Murres.
SPS-88		Rocky Bay PIE0181 47º-21.67'N 122º-47.26'W	Exclusion Booming - Keep oil out of Bay.	1200'	Chevron from the sand spit to the north and the wooden bulkhead to the south.	Vaughn boat launch area.	Hwy. 302 & Bond Road.	Winter concentrations of Grebes & Murres.
SPS-89		Small creek to south of Rocky Bay PIE0184 47º-21.50'N 122º-47.12'W	Exclusion - Keep oil out of creek.	100'	Deploy boom across small creek to the south of Rocky Bay.	Vaughn boat launch area.	Hwy. 302 & Bond Road.	Winter concentrations of Grebes & Murres.
SPS-90		Vaughn Bay PIE0189 47º-20.58'N 122º-47.12'W	Exclusion Booming - Keep oil out of bay.	500'	Boom off bay by angling boom from pilings to shore.	Vaughn, boat ramp.	Access via boat.	Seabird concentrations.
SPS-91		Dutcher Cove area PIE0206 47º-18.38'N 122º-47.32'W	Exclusion Booming - Keep oil out of stream.	1000'	Boom off cove with chevron formation.	Vaughn, boat ramp.	Access via boat.	Seabird concentrations.
SPS-92		Small Cove South of Dutcher Cove PIE0211 47º-18.02'N 122º-47.18'W	Exclusion Booming - Keep oil out of stream.	100'	Place 100' section across small opening south of cove.	Vaughn, boat ramp.	Access via boat.	Seabird concentrations.

4.3.2 Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
SPS-93		Herron Bay PIE0217 47º-16.51'N 122º-48.67'W	Exclusion - Keep oil out of bay.	100'	Deploy boom across mouth of bay at bridge.	Parking area at dock for Herron Island.	Road access via North Herron Rd, or via boat.	
SPS-94		Cove north of Whitman Cove and due east of McMicken Is. PIE0232 47º-14.74'N 122º-49.71'W	Exclusion booming - Keep oil out of cove.	100'	Boom off entrance to cove.	RFK Park - DNR recreation area.	Road access via Russell Road.	Salmon stream, wetland habitat, seabird concentrations.
SPS-95		McMicken Island MAS0347 47º-15.00'N 122º-51.89'W	Exclusion booming - Keep oil off island.	2500'	Deploy boom from the north end of the island to the beach to the west.	Zittel's Marina or Johnson Point.	Zittel's Marina or Johnson Point.	Marine mammal haulout; seabird concentrations.
SPS-96		McMicken Island MAS0346 47º-14.71'N 122º-51.92'W	Exclusion booming - Keep oil off island.	1700'	Deploy boom from the south end of the island to the beach to the southwest.	Zittel's Marina or Johnson Point.	Zittel's Marina or Johnson Point.	Marine mammal haulout; seabird concentrations.

APPENDICES

Appendix A: Summary of Protection Techniques

Protection Techniques	Description	Primary Logistical Requirements	Limitations
ONSHORE			
Beach Berms	A berm is constructed along the top of the mid-inter tidal zone from sediments ex-cavated along the downgradient side. The berm should be covered with plastic or geo-textile sheeting to minimize wave erosion.	• Bulldozer/Motor grader -1 • Personnel - equipment operator & 1 worker • Misc. - plastic or geotextile sheeting	• High wave energy • Large tidal range • Strong along shore currents
Geotextiles	A roll of geotextile, plastic sheeting, or other impermeable material is spread along the bottom of the supra-tidal zone & fastened to the underlying logs or stakes placed in the ground.	• Geotextile - 3 m wide rolls • Personnel - 5 • Misc. - stakes or tie-down cord	• Low sloped shoreline • High spring tides • Large storms
Sorbent Barriers	A barrier is constructed by installing two parallel lines of stakes across a channel, fastening wire mesh to the stakes & filling the space between with loose sorbents.	Per 30 meters of barrier • Wire mesh - 70 m x 2 m • Stakes - 20 • Sorbents - 30 m^2 • Personnel - 2 • Misc. - fasteners, support lines, additional stakes, etc.	• Waves > 25 cm • Currents > 0.5 m/s • Tidal range > 2 m
Inlet Dams	A dam is constructed across the channel using local soil or beach sediments to exclude oil from entering channel.	• Loader - 1 • Personnel - equipment operator & 1 worker or several workers w/shovels	• Waves > 25 cm • Tidal range exceeding dam height • Freshwater outflow

NEARSHORE			
Containment Booming	Boom is deployed in a "U" shape in front of the oncoming slick. The ends of the booms are anchored by work boats or drogues. The oil is contained within the "U" & prevented from reaching the shore.	For 150 meters Slick: • Boom - 280 m • Boats - 2 • Personnel - boat crews & 4 boom tenders • Misc. - tow lines, drogues, connectors, etc.	• High winds • Swells > 2 m • Breaking waves > 50 cm • Currents > 1.0 m/s
Exclusion Booming	Boom is deployed across or around sensitive areas & anchored in place. Approaching oil is deflected or contained by boom.	Per 300 meters of Boom • Boats - 1 • Personnel - boat crew & 3 boom tenders • Misc.- 6 anchors, anchor line, buoys, etc.	• Currents > 0.5 m/s • Breaking waves > 50 cm • Water depth > 20 m
Deflection Booming	Boom is deployed from the shoreline away from the approaching slick & anchored or held in place with a work boat. Oil is deflected away from shoreline.	Single Boom, 0.75 m/s knot current • Boom - 60 m • Boats - 1 • Personnel - boat crew + 3 • Misc. - 3 anchors, line, buoys, recovery unit	• Currents > 1.0 m/s • Breaking waves > 50 cm
Diversion Booming	Boom is deployed from the shoreline at an angle towards the approaching slick & anchored or held in place with a work boat. Oil is diverted towards the shoreline for recovery.	Single Boom, 0.75 m/s knot current • Boom - 60 m • boats - 1 • Personnel - boat crew + 3 • Misc. - 3 anchors, line, buoys, recovery unit	• Currents > 1.0 m/s • Breaking waves > 50 cm
Skimming	Self-propelled skimmers work back & forth along the leading edge of a windrow to recover the oil. Booms may be deployed from the front of a skimmer in a "V" configuration to increase sweep width. Portable skimmers are placed within containment booms in the area of heaviest oil concentration.	Self-propelled (None) Towed • Boom - 200 m • Boats - 2 • Personnel - boat crews & 4 boom tenders • Misc. - tow lines, bridles, connectors, etc. Portable • Hoses - 30 m discharge • Oil storage - 2000 liters	• High winds • Swells > 2 m • Breaking waves > 50 cm • Currents > 1.0 m/s

Source is R. Miller of Clean Sound Cooperative.

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Appendix C: Geographic Response Plan Comments/Corrections/Suggestions

If you have any questions regarding this document or find any errors, please notify one of the following agencies: or use tear out sheet (page C-3)

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- USCG Marine Safety Office Puget Sound, Planning Department
- USCG Marine Safety Office Portland
- Oregon Department of Environmental Quality
- Idaho Emergency Response Commission
- Environmental Protection Agency Region 10

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Geographic Response Plan

Comments/Corrections/Suggestions

Directions:
Fill in your name, address, agency, and phone number. Fill in the blanks regarding the location of information in the plan being commented on. Make comments in the space provided. Add extra sheets as necessary. Submit to:

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Name: _____ Title:_____ Agency:_____

Address:_____

City: _____ State/Province:_____ Zip/Postal Code:_____

Phone: (____) _____ E-Mail:_____

GRP:_____Page Number:_____

Location on page (chapter, section, paragraph) (e.g. 2.1, paragraph 3):_____

Comments:_____

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